

U.S. Patent Application Serial No. **10/622,513**  
Amendment filed March 16, 2005  
Reply to OA dated October 21, 2004

**REMARKS**

Claims 7-12 are pending in this Office action. Claims 1-6 have been canceled without prejudice or disclaimer and claims 7-12 have been added in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. Applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **October 21, 2004**.

Support for the claim amendments is as follows:

Claim 7 is written in process form, incorporating the process limitations of original claim 5 and the compositional limitations of claim 1. Support for the limitations in new claims 8, 9 and 10 may be found in original claims 2, 3 and 4.

Support for new claim 11 may be found in original claim 6.

Support for new claim 12 may be found in original claim 4.

**Claims 3 and 4 have been objected to because of minor informalities.**

The Examiner states that the word "claim" on line 1 of each of claims 3 and 4 (which are multiple dependent claims) should be ~~claims~~. Claims 3 and 4 have been canceled without prejudice or disclaimer. However, the use of the singular "claim" is maintained in new claims 9 and 10, and Applicant submits that this wording is proper. See MPEP 608.01(n)I.A., 5<sup>th</sup> example.

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The Examiner correctly notes that “have” on line 2 of claim 4 should be –has–. Claim 4 has been canceled without prejudice or disclaimer, and the corresponding wording in new claim 10 has been corrected.

**Claims 1-6 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The Examiner states that claims 1, 2 and 3 improperly state a Markush group. Claims 1-3 have been canceled without prejudice or disclaimer, but the original wording of “at least one selected from” is maintained in new claims. The rejection under 35 U.S.C. 112, second paragraph, is respectfully traversed, as Applicant notes that the standard Markush wording of “at least one selected from **the group consisting of,**” is not **required** to define an alternative expression. MPEP 2173.05(h) states that “Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question or scope of the claims.” Applicant submits that the present wording is unambiguous.

With regard to claim 3, the Examiner refers to the phrase “said hexaboride comprises fine particles.” The rejection is moot for claim 3, which has been canceled without prejudice or disclaimer. The wording in corresponding new claim 9 has been changed to “the hexaboride is in the form of fine particles”.

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The Examiner indicated that the term “stated shape” in claim 5 was unclear. Claim 5 has been canceled without prejudice or disclaimer. The recitation of “stated shape” does not appear in corresponding new claim 7, which recites “forming the resulting mixture”.

**Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. §102(b) as being anticipated by Fisher (U.S. 2002/0086926).**

The rejection of claims 1, 3, 5 and 6 is moot in view of the cancellation of these claims without prejudice or disclaimer. Applicant submits that new claims 7-12 are not anticipated by Fisher.

Fisher discloses an infrared absorbing composition made from polyvinyl butyral containing lanthanum hexaboride, with the lanthanum hexaboride present at 0.005% to 0.1% (paragraph [0003], [0013]-[0016], etc.) The specific examples in Figs. 1 and 2 have 0.004% or 0.01% LaB<sub>6</sub>.

New claim 7 is a process claim, incorporating the process recited in original product-by-process claim 5. Specifically, claim 7 recites “diluting and mixing a master batch containing a heat radiation shielding component with a thermoplastic-resin form material of the same type as the thermoplastic resin of the master batch or a different type of thermoplastic-resin form material having a compatibility with the master batch”.

The Examiner had cited paragraphs [0035] and [0036] of Fisher as reciting this process. (These paragraphs give examples of the general process of paragraph [0026]). In these examples, the initial composition has 5.11 g of 6.3% LaB<sub>6</sub> in 878.7 g **triethyleneglycol di-2(ethylhexanoate)**.

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(This would yield a concentration of 0.036%.) This is then blended with 2250 g of the polyvinyl butyral to make concentrations of 0.015%, etc.

However, triethyleneglycol di-2(ethylhexanoate) is a **plasticizer**, but not a thermoplastic resin. See, for example, Fisher in paragraph [0035], line 3, and [0036], line 3.

That is, Fisher's Example 6 indicates that 5.11 g of LaB<sub>6</sub> having a concentration of 6.3% and dispersed in a **plasticizer** that is triethylene glycol di-(2-ethylhexanoate) is mixed with 878.7 g of the above-mentioned triethylene glycol di-(2-ethylhexanoate). The blend of LaB<sub>6</sub> and plasticizer is added to 2250 g of polyvinyl butyral (i.e., the resin) and molded into sheet using an extruder. In addition, Example 7 describes that 5.11 g of LaB<sub>6</sub> having a concentration of 6.3% and dispersed in a **plasticizer** that is triethylene glycol di-(2-ethylhexanoate), and 21.47 g of ITO having a concentration of 30% and dispersed likewise in triethylene glycol di-(2-ethylhexanoate) are mixed with 863.7 g of the above-mentioned triethylene glycol di-(2-ethylhexanoate). This blend is added to 2250 g of polyvinyl butyral and molded into sheet using an extruder.

That is, Fisher merely describes a method by which a dispersion composed of LaB<sub>6</sub> having a 6.3% concentration and dispersed in a **plasticizer** is mixed with triethylene glycol di-(2-ethylhexanoate) (the **plasticizer** mentioned above), and this blend is then added to polyvinyl butyral and molded into sheet. In order to correspond to present claim 7, Fisher would have to disclose a method in which a **polyvinyl butyral composition** (i.e., thermoplastic resin) is prepared, followed by dilution with additional PVB resin.

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In the production method of new claim 7, a master batch containing a heat radiation shielding component (which may be, for example, in pelletized form), in which a hexaboride with a specified concentration has been dispersed, is used, and this master batch is diluted in the course of performing the recited method, whereby a heat radiation shielding transparent resin form is produced. This may be seen, for example, in Example 1 of the present specification. Applicant submits that the method of claim 7 is not suggested by the production method of the Fisher patent, in which a heat radiation shielding component is directly dispersed into a resin material without such a dilution process.

Applicant therefore submits that new claims 7-12 are not anticipated by, and are non-obvious over, Fisher (U.S. 2002/0086926).

**Claims 1-3 are rejected under 35 U.S.C. §102(a) as being anticipated by Takeda (JP 2002-369629).** (Office action paragraph no. 4)

The rejection of claims 1-3 over Takeda is moot in view of the cancellation of claims 1-3 without prejudice or disclaimer.

With regard to new claims 7-12, Applicant asserts the right to foreign priority of the Japanese priority application JP2002-223896, filed on July 31, 2002. (The claim for priority has already been made and perfected in this application). The priority application predates Takeda JP'629, which was published on December 24, 2002. The claim for priority is supported by the presentation of a verified translation of the priority document, attached to this Amendment.

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Applicant submits that the present claims are supported by priority document. With reference to the verified translation, the claims of the priority document can be seen to correspond closely with original claims 1-6 of the present application. Present new claim 7 is therefore supported by the method recitation in claim 5 and the compositional limitations in claim 1 of the priority document. Support may also be found in paragraphs [0011], [0012], [0014], [0025], etc. Likewise, present claims 8, 9 and 10 are supported by claims 2, 3 and 4 of the priority document, and support for present claims 11 and 12 may be found in claims 6 and 4 of the priority document.

Applicant therefore submits that Takeda (JP 2002-369629) is removed as prior art under 35 U.S.C. 102(a) for the present claims.

**Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) in view of Takeda et al. (JP 2000-169765, cited on IDS dated 07/21/03). (Office action paragraph no. 5)**

The rejection of claims 1, 3, 5 and 6 is moot in view of the cancellation of these claims without prejudice or disclaimer. Applicant submits that new claims 7-12 are novel and non-obvious over Fisher '926 and Takeda et al. (JP 2000-169765).

As discussed above, new claim 7 recites a method which is not described in nor suggested by Fisher '925. Specifically, Fisher does not disclose "diluting and mixing a master batch" having the recited compositional limitations "with a thermoplastic-resin form material of the same type as

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the thermoplastic resin of the masterbatch” or with a different compatible resin. Claims 7-12 are therefore non-obvious over Fisher taken alone.

The Examiner cites Takeda et al. JP ‘765 for the disclosure of other lanthanide hexaborides, which are substituted for the lanthanum hexaboride of Fisher. However, Takeda JP ‘765 also does not disclose the method limitations of claim 7, and the combination of Takeda JP ‘765 with Fisher fails to disclose or suggest these limitations.

**Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) alone or Fisher (U.S. 2002/0086926) in view of Takeda et al. (JP 2000-169765), as applied to claims 1, 3, 5 and 6 above, and further in view of Hall (EP 0 459 704). (Office action paragraph no. 6)**

The rejection of claim 2 is moot in view of the cancellation of claim 2 without prejudice or disclaimer. Applicant submits that new claims 7-12 are novel and non-obvious over Fisher ‘926, Takeda et al. (JP 2000-169765) and Hall (EP ‘704), taken separately or in combination.

As noted above in regard to the rejection in paragraph no. 5 of the Office action, present claim 7 is novel and non-obvious over Fisher ‘926 and Takeda JP ‘765, in particular because neither discloses or suggests the step of “diluting and mixing a master batch ...” as recited in the claim.

The Examiner cites Hall for the disclosure of acrylic or polycarbonate resins, which the Examiner substitutes for the PVB in Fisher. Applicant submits, however, that Hall does not disclose

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or suggest the method limitation of claim 10, and that therefore no combination of Fisher '926, Takeda et al. JP '765, and Hall can produce the present claims.

**Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fisher (U.S. 2002/0086926) alone or Fisher (U.S. 2002/0086926) in view of Takeda et al. (JP 2000-169765), as applied to claims 1, 3, 5 and 6 above, and further in view of Hall (EP 0 459 704), and further in view of *Handbook of Fillers*. (Office action paragraph no. 7)**

The rejection of claim 4 is moot in view of the cancellation of claim 2 without prejudice or disclaimer. Applicant submits that new claims 7-12 are novel and non-obvious over Fisher '926, Takeda et al. (JP 2000-169765), Hall (EP '704), and *Handbook of Fillers*, taken separately or in combination.

As noted above in regard to the rejection in paragraph no. 6 of the Office action, present claim 7 is novel and non-obvious over Fisher '926, Takeda JP '765, and Hall, in particular because none of these discloses or suggests the step of "diluting and mixing a master batch ..." as recited in the claim. Applicant submits that *Handbook of Fillers* also fails to disclose or suggest the method of claim 7.

Moreover, in the rejection, the Examiner states that "Fisher does not disclose that its hydrophilic hexaboride is surface-treated with a silane compound ...."



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The Examiner also states that PVB, the resin used in Fisher, is hydrophilic, and states that *Handbook of Fillers* states that hydrophilic fillers do not easily combine with hydrophobic polymers, and that reaction of the filler with a silane compound increases the interaction between the filler and the polymer.

However, Applicant notes that Fisher does not refer to the hexaborides as “hydrophilic hexaboride”. In fact, Fisher does not use the word “hydrophilic.” Fisher never discusses the relative hydrophilicity of the PVB and the  $\text{LaB}_6$ , nor does Fisher indicate that there is any particular problem in combining these in the method given in the reference. Therefore, there is, in fact, no suggestion or motivation in Fisher for the Examiner’s proposed modification of Fisher.

In addition, *Handbook of Fillers* deals with **fillers**, but the Examiner has not included the book’s definition of “filler.” Fisher does not use the term “filler,” and it is not clear that  $\text{LaB}_6$ , which clearly has an active function as light absorbing material in Fisher, would be considered to be a “filler” by one of skill in the art.

Since no combination of the references can produce present claim 7, and since there is no motivation for the Examiner’s proposed combination, Applicant submits that the present claims are non-obvious over the cited references.

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**Claims 1-5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 12 of copending application Serial No. 10/660,745 (published as U.S. PGPub 2004/0071957 A1). (Office action paragraph no. 8)**

**Claims 1-5 are directed to an invention not patentably distinct from claims 1-4 and 12 of commonly assigned application Serial No. 10/660,745. (Office action paragraph no. 9)**

The rejection is obviated by the filing of a terminal disclaimer over 10/660,745. The terminal disclaimer papers accompany this Amendment.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Terminal Disclaimer and Submission of Terminal Disclaimer  
Verified Translation of priority document Japanese application 2002-223896